WHAT IS CLAIMED IS:

1. A multiple layer inductor implemented on a substrate having a plurality of surfaces, comprising:

a first spiral conductive pattern disposed on a first of the plurality of surfaces;

a second spiral conductive pattern disposed on a second of the plurality of surfaces;

a continuing interconnection coupled to said first and second spiral conductive patterns;

an interface coupled to said first and second spiral conductive patterns; and

a first conductive shield pattern disposed on a third of the plurality of surfaces, said third surface adjacent to said second surface.

2. The multiple layer inductor of claim 1, wherein said interface comprises first and second terminals disposed on said first surface, wherein said first terminal is coupled to said first spiral conductive pattern, and said second terminal is coupled to said second spiral conductive pattern.

3. The multiple layer inductor of claim 1, wherein said continuing interconnection comprises:

a first via coupled to said first and second spiral conductive patterns; and

a second via coupled to said second spiral conductive pattern and said interface.

4. The multiple layer inductor of claim 1, wherein said continuing interconnection comprises:

a first via coupled to said first spiral conductive pattern;

a second via coupled to said second spiral conductive pattern;

a third spiral conductive pattern disposed on a fourth surface that is coupled to said first and second vias.

5. The multiple layer inductor of claim 4, wherein said first and second spiral conductive patterns have a first orientation, and wherein said third spiral conductive pattern has a second orientation that is different than said first orientation.

6. The multiple layer inductor of claim 1, wherein said continuing interconnection comprises:

a first via coupled to said first spiral conductive pattern;

a second via coupled to said second spiral conductive pattern; and

a plurality of coupled of spiral conductive patterns, each disposed on a respective one of a plurality of adjacent layers;

wherein a first of the plurality of spiral conductive patterns is coupled to said first via, and a second of the plurality of spiral conductive patterns is coupled to said second via.

7. The multiple layer inductor of claim 6, wherein said plurality of coupled of spiral conductive patterns have orientations that alternate according to adjacent surfaces.

8. The multiple layer inductor of claim 1, wherein said first and second spiral conductive patterns have different orientations.

9. The multiple layer inductor of claim 1, further comprising a second conductive shield pattern disposed on a fourth surface that is adjacent to said first surface.

10. The multiple layer inductor of claim 9, wherein said first and second shield patterns are grounded.

11. The multiple layer inductor of claim 1, further comprising first and second conductive side shield patterns disposed on said first and second layers, respectively.

12. The multiple layer inductor of claim 11, wherein said first and second side shield patterns are grounded.

13. A method of designing a multiple layer spiral inductor having a plurality of spiral conductive patterns disposed on corresponding substrate surfaces, the method comprising:

(a) determining a number of spiral conductive patterns;

(b) selecting a spiral shape for each of the spiral conductive patterns;

(c) defining spatial characteristics for each of the spiral conductive patterns; and

(d) verifying the performance of the multiple layer spiral inductor having the determined number of spiral conductive patterns, the selected spiral shape, and the defined spatial characteristics.

14. The method of claim 13, wherein step (c) comprises:

(1) defining a line width, an outer radius, and a mean radius for each of the spiral conductive patterns.

15. The method of claim 14, wherein step (c) further comprises:

(2) defining an inner radius for each of the spiral conductive patterns.

16. The method of claim 13, wherein step (d) comprises:

(1) calculating an inductance based on the determined number of spiral conductive patterns, the selected spiral shape, and the defined spatial characteristics; and

(2) repeating steps (a), (b), and (c) when the calculated inductance is not substantially equal to a target inductance.

17. The method of claim 16, wherein step (1) comprises calculating the inductance according to:

$$L = \frac{37.5\mu_o n^2 a^2}{(22r - 14a)}$$, wherein

L is the inductance in Henries,

n is a total number of turns in the plurality of spiral conductive patterns,

μ_o is the permeability of free space,

r is an outer radius for each of the spiral conductive patterns in meters, and

a is the mean radius for each of the spiral conductive patterns in meters.

18. The method of claim 13, wherein step (d) further comprises:

(3) simulating a circuit application of the multiple layer spiral inductor having the determined number of spiral conductive patterns, the selected spiral shape, and the defined spatial characteristics.

19. A diplexer filter for use in a communications device, comprising:

one or more multiple layer inductors implemented on a substrate having a plurality of surfaces;

wherein each of the one or more multiple layer inductors includes:

a first spiral conductive pattern disposed on a first of the plurality of surfaces;

a second spiral conductive pattern disposed on a second of the plurality of surfaces;

a continuing interconnection coupled to said first and second spiral conductive patterns;

an interface coupled to said first and second spiral conductive patterns; and

a first conductive shield pattern disposed on a third of the plurality of surfaces, said third surface adjacent to said second surface.

20. The diplexer filter of claim 19, wherein said communications device includes a television tuner.

21. The diplexer filter of claim 19, wherein said communications device is a cable modem.